

2008-12-22

VuFind - Modified Card Sorting Labels Test

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Usability Report Cover Sheet

Project	<ul style="list-style-type: none">• VuFind• Modified Card Sorting Labels Test
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Online Report Location	<ul style="list-style-type: none">• http://www.lib.umich.edu/usability/projects/ProjectReports/VuFind_Card_Sort.pdf

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Usability Report

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Introduction

VuFind is the open-source, next generation discovery tool featuring faceted searching that will soon be used to provide access to the MLibrary catalog. VuFind is not currently slated to replace Mirlyn as the main library catalog, but it will work in conjunction with Mirlyn.

Goals for card sorting test*:

1. Solicit suggestions from users for labeling facet categories.
2. Determine how users perceive the relative importance of facets.
3. Determine how many narrowing terms users would like to see within each facet.

* This report describes a usability assessment performed by the MLibrary Usability Group and Task Force. Usability assessment is a part of the iterative design process used to develop new systems and services at MLibrary. This report describes one test in a series of tests performed at one point in the iterative design process. Sample sizes are small and findings serve only as clues to help guide decisions. Implementation of any recommendations should take these limitations into account.

Test Description & Methodology

Test Description

Participants were shown a poster of a screenshot of a development version of the VuFind interface. The interface was customized for the University of Michigan Library, showing the search results for a keyword search on “architecture.” The column showing facets was removed from the poster, and each facet was taped to an individual index card, labels were blacked out and 5 terms were listed for each facet. Test administrators briefly described how facets allow users to narrow a catalog search, and distributed the 12 index cards to the participants.

Participants were asked to read the narrowing terms on each card, give each facet a descriptive label, and write that label on a sticky note attached to the index card. Next, they were asked to arrange the index cards in a single column to the left of the search results, sorting the facets in the order they would like to see them in the catalog display. In addition to recording participant comments during the labeling and ordering exercise, test administrators asked three follow-up questions to assess participant opinion about the sort order and default number of terms within each facet and whether any facets should be excluded or added to the column.

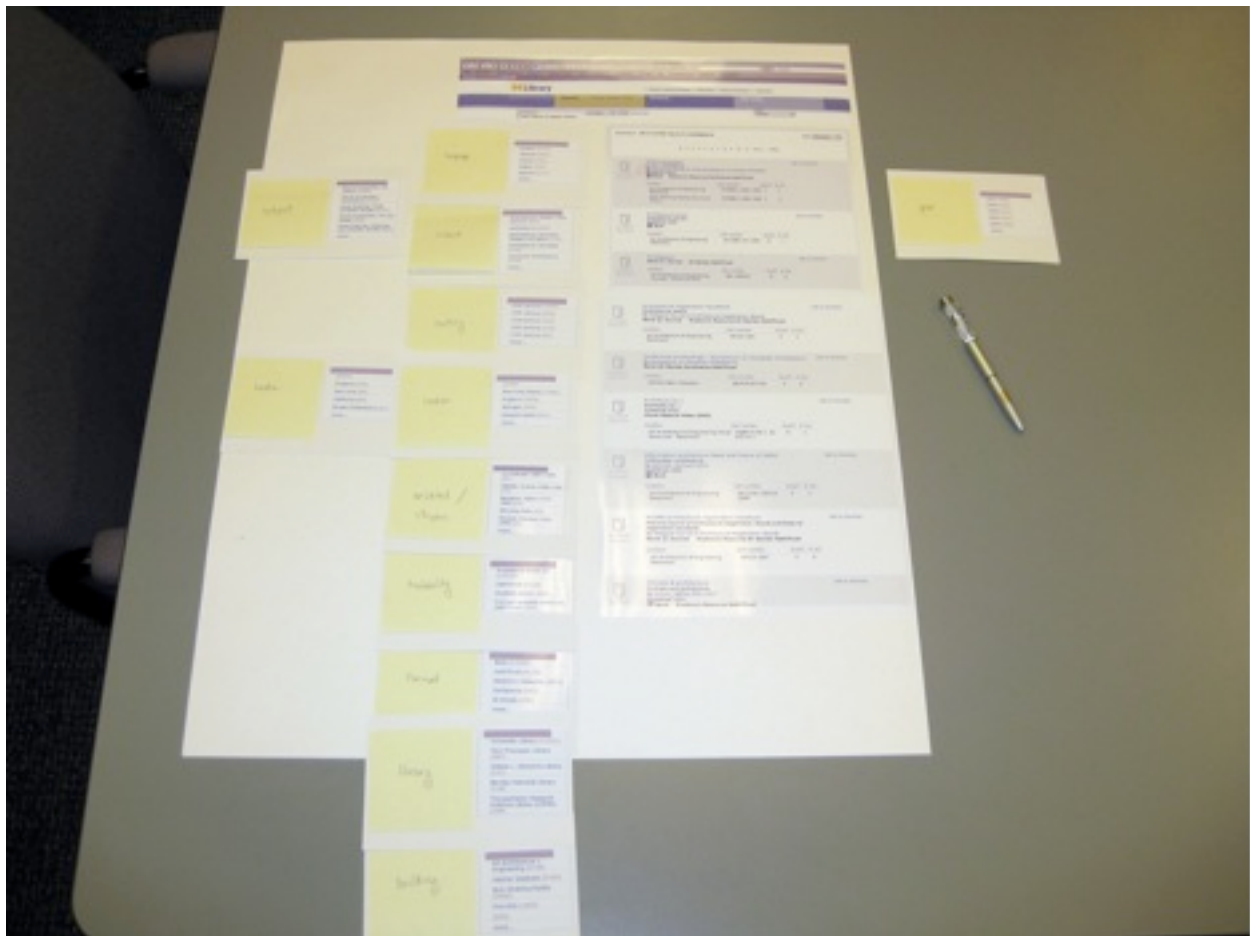


Figure 1. The results of one card sorting exercise. The screenshot displays the results of a keyword search for

"architecture." The participant has written their labels for each facet on sticky notes and attached them to the cards. The cards have been placed on the page the way the participant would like to see them, excluding one, "Year," on the right.

Methodology

1. Card sorting exercise: Card sorting is a method used to gain an understanding of how users prefer to group or organize information on a website. In this instance, card sorting was used to assess whether users recognize what each facet represents and to determine how they would name or identify facets. Twelve facets were represented on individual index cards and users were asked to label and then arrange the facets according to their preference (see Figure 1).
2. Task force members removed the default facet label for each category before presenting the cards to the participants; however, each card was labeled on the back with a letter representing the default facet label. Ultimately, task force members were able to compare participant facet labels to the default labels by matching up the letter on the back of the index card to the default facet label.
3. Default facet labels were identified by the following letter associations:
 - A = Author
 - B = Full category (University of Michigan Classification High-level Browse, both top and sub category)
 - C = Subject
 - D = Format
 - E = Language
 - F = Availability
 - G = Location
 - H = Library
 - I = Publication date
 - J = Publication country (Note: Although this category has been identified as "Publication country," the example that we were able to use included items within this list that were not countries, such as "New York (state)" and "Michigan." This may have confused our participants, consequently there was no way for them to "correctly" label this facet.)
 - K = Region
 - L = Time period
4. Task force members worked in pairs (one note taker, one questioner) to meet with individual participants. Task Force members interviewed a total of 8 volunteers who were solicited through email invitations to various campus departments and through personal invitations.
5. Participants were interviewed individually in group study rooms at the Harlan Hatcher Graduate Library on the campus of the University of Michigan.

6. Each card sorting exercise took approximately 30 minutes to complete.
7. Users signed a consent form and were offered 10 BlueBucks (to be used at campus stores and coffee shops) as a small incentive.

Results

Total Participants: 8

Participant Status:

- 2 undergraduate students
- 2 graduate students
- 2 staff
- 2 faculty

Results for Task #1 - Label Facet Categories

Individual facets labeled with some consistency:

Default facets labels are presented within () and participant facet labels are presented within “”.

- Facet E (language) was labeled “language” by 7 of the 8 participants.
- Facet F (availability) was labeled with some variation of the word “availability” by all participants. It should be noted, however, that the word “available” was present within the items listed within the facet itself and this likely influenced our participants. Similarly, Facet L (time period) was labeled using the term “century” by 6 of 8 participants, but each item listed was identified using the word century (i.e., “19th century,” “20th century,” etc.).
- Facet D (format) was labeled either “form” or “format” (4 of 8), or “type” (4 of 8), or “material type,” “type of material,” “source type” or “type of publication.”
- Facet I (publication date), was labeled using the word “year” by 5 of 8 participants; 6 of 8 used the word “publication,” and 3 of 8 used “date.”

Multiple facets for which the participants provided the same or similar labels:

The labeling of some facets with the same or similar terms implies that participants found some categories to be redundant and/or confusing:

- Both Facet B (full category) and Facet C (subject) were labeled by multiple participants with some variation of the word “subject.” Facet B was labeled “subject” by half the participants (4 of 8), while Facet C was labeled “subject” by 2 of 8 participants.
- Half the participants (4 of 8) used “architecture” to label Facet C (subject). For example: “style of architecture,” “modern architecture,” and “type of architecture.” These labels imply a more specific subject-related facet label; however, they were still labeled in a way that related to the larger category of “subject.” In addition, for Facet A (author), the word “author” was used by 4 out of 8 people, and “architect” was used by 5 of 8 people.

- Facets G (location) and H (library) were similarly confused or perceived as the same thing. Facet G (location) was labeled using the word “location” by 4 out of 8 people, while 3 of 8 labeled this facet with the word “library.” For facet H (library), the word “library” was used by 6 of 8 people, and “location” used by 4 of 8 participants.

Results for Task #2 - Place Index Cards in Order

Facet ranking and prevalence:

For Table 1 below, each of the 12 default facets is listed on the top row of the table. Ranking order (the order in which each person preferred to have the facets listed on the web page, with “1st” meaning the facet was placed at the top of the list) by participant is listed along the columns of the table.

The numbers associated with where the facet and rank meet are the number of times that facet was placed at a certain rank by each participant. “Exclude” refers to the number of participants who chose to exclude a facet from their list.

	A	B	C	D	E	F	G	H	I	J	K	L
1 st	2	1	1	2	1							1
2 nd	2	1	2	1		2	1	1				
3 rd	1		1	1			1		2		1	1
4 th		1			2			1		1	1	3
5 th	2	1	1		1				2		1	
6 th	1		3	1		1			1	1	2	1
7 th				1			2		1	1		
8 th				1	1	1					1	
9 th					1	1	1	2		1		
10 th			1				2			1		
11 th		1		1				2				
12 th		1			1	1			1			
Excluded		2			1	2	1	2	1	3	2	2

Table 1. Overall facet ranking and prevalence.

- This table indicates that there was little consistency among participants as to the order in which they preferred to see the facets listed on the page.
- It should also be noted that this table is less meaningful when taking into account that the participants may not have correctly understood the meaning of each facet. For example, in reference to Facet J (publication country), one participant commented, “if that’s place of publication, I don’t really care about that,” reminding us that some participants were not sure of or were mistaken about the content of each facet.
- In other words, it is difficult to compare facet rank order across participants without having provided each person with a consistent definition of each facet.

Facet order by participant: Mode, Average Rank, and Standard Deviation:

Table 2 includes a variety of information about the ranking of each facet by each participant. However, each factor (mode, average and standard deviation) is less meaningful when considered alone without taking the others into account. For example, the table shows that Facet A (author) is more consistently ranked higher than other terms, while Facet J (publication country), was ranked lowest. Both mode and average sorting placement seem to confirm this, but keep in mind that with a standard deviation of almost 2 and 3.5, respectively, out of such a small sample, this is not as meaningful as the numbers appear to indicate.

Facet (below)	Participant								Mode	Avg. Rank	Standard Deviation
	1	2	3	4	5	6	7	8			
A	3	1	6	5	1	2	5	2	2	3.125	1.95940953204931
C	2	6	5	10	6	1	2	3	6	4.375	2.97309362689534
D	11	2	1	1	3	6	7	8	1	4.875	3.68151754424333
L	4	4	13	6	13	4	3	1	4	6	4.53557367611073
I	6	3	3	7	5	5	13	12	3	6.75	3.80788655293195
E	8	13	4	12	4	9	1	5	4	7	4.20883424647321
K	5	13	6	8	13	3	4	6	6	7.25	3.84521966676993
G	10	13	2	3	7	7	9	10	7	7.625	3.70086862390825
B	1	5	13	11	13	12	2	4	13	7.625	5.12521776540833
F	12	13	13	2	2	8	6	9	13	8.125	4.51782185192315
H	9	13	2	4	13	11	8	11	13	8.875	4.05101398241407
J	13	13	6	9	13	10	4	7	13	9.375	3.50255009141299

Table 2. Facet order by participant: Mode, Average Rank, and Standard Deviation.

Facets excluded by more than one participant:

Excluded by two participants:

- Facet B (Full category)
- Facet F (Availability)
- Facet H (Library)
- Facet K (Region)
- Facet L (Time period)

Excluded by three participants:

- Facet J (Publication country)
- H (Library) tended to be placed near the bottom or excluded.
- F (Availability) was excluded by the two faculty participants but placed second from the top by two students (one graduate student and one undergraduate student).

General conclusions from Tasks 1 and 2:

- The results for Task 1 show that there is some consistency in regard to category labels. Even though our participants used different words/labels, these words were still related semantically.
- For the 8 people who participated in our test, labels were somewhat consistent, but there appeared to be no consistency as to the order of preference on the page (rank).

Follow-up question #1: Different sort order?

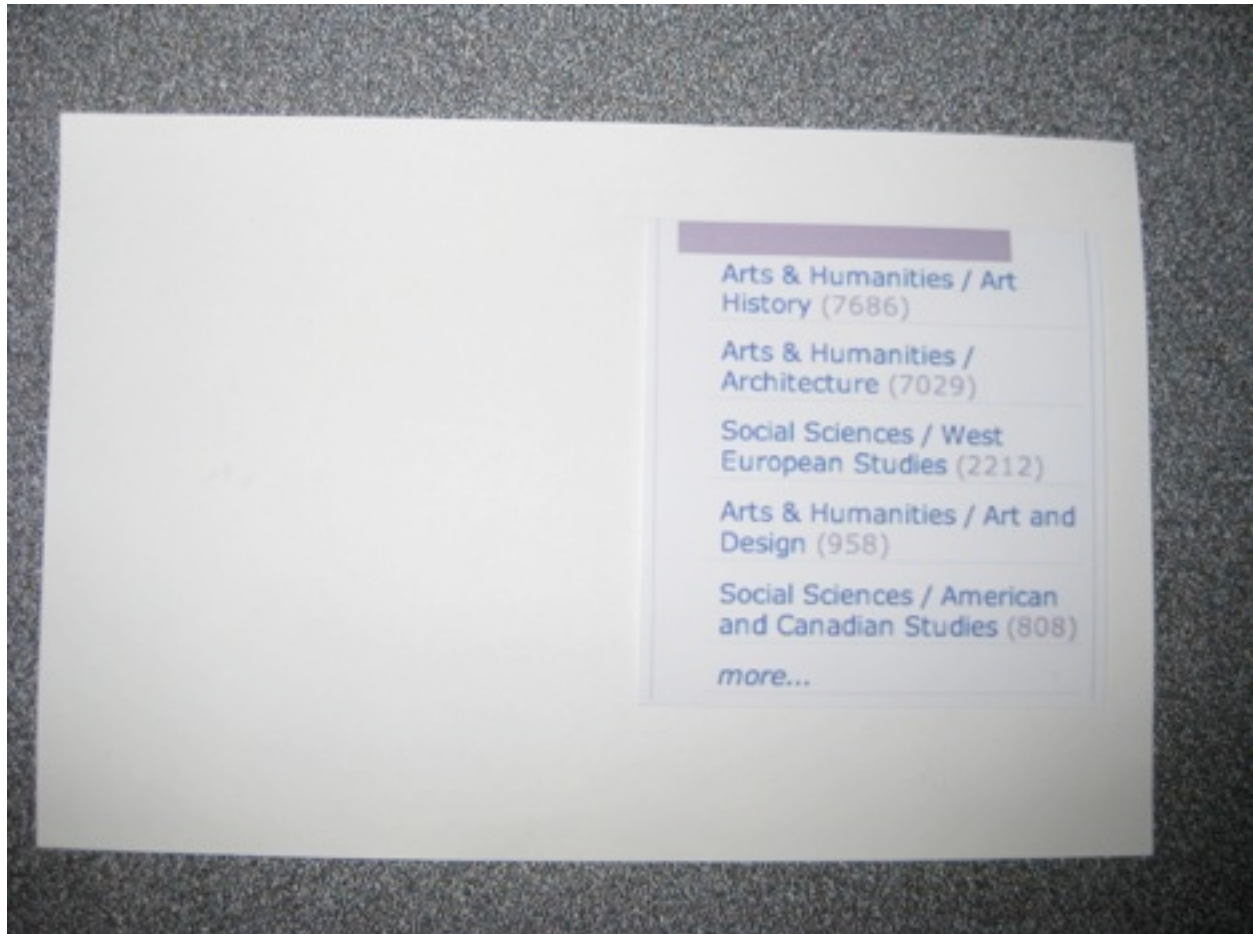


Figure 2. An example index card with a facet grouping of items on it, with no category assigned, ready to be labeled by participant.

As the current default display, there are 5 items listed within each facet. Each of the 5 items listed represent a way to narrow the search results within that facet even further. For example, for Facet L (time period) the 5 narrowing items could be: “19th Century,” “18th Century,” “17th Century,” “16th Century,” “15th Century.” The default presentation of 5 items within each facet currently orders each item by which the number of search results. Some participants made comments about the order of items within individual facets:

- Only one participant approved of the default sort order that places the item with the most

results at the top of the list to least results at the bottom of the list. This is the default order for all facets regardless of category.

- Some participants (3 of 8) preferred an alphabetical order, regardless of number of results, for facets like A (author) and J (place of publication).
- Chronological order was suggested (4 of 8) for Facet I (publication date) and Facet L (time period). Some participants (2 of 8) suggested the most recent dates be displayed at the top of the facet. One participant suggested the oldest date be displayed at the top for Facet I.
- A fixed order was also suggested for Facet E with (2 of 8) wanting English displayed at the top of this facet.
- One participant also wanted a fixed order for Facet D (format) with ‘book’ listed first, ‘electronic resource’ listed second, and other terms listed after these as they were viewed as less useful.

Follow-up question #2: Which groups should be excluded?

- One participant mentioned that he/she wanted to see all facets placed in the order that made the most sense to them individually as it relates to what they were searching for at the time. This type of reasoning was common across all the responses of the participants.
- The faculty participants didn’t care about narrowing by availability, noting the delivery options the Library offers, with which they were familiar.
- Several participants indicated that place of publication was not important to them.
- Some participants excluded facets they did not understand after reading the terms. For example, HathiTrust seemed to have very low name recognition (3 of 8 commented that they did not know what it meant).

Follow-up question #3: Would you like a longer or shorter list of items under each facet?

- The majority of participants (5 of 8) prefer the default of 5 items per facet.
- Several participants did not want to see more than 5 and cited they didn’t want to have to scroll down the page if more items were listed.
- One participant only wanted to see the label of the facet. One other participant warned against only showing the label of the facet as this would disguise the information that would be provided by that facet.

Recommendations

- Overall, there is little consistency in terms of labeling and sorting; however, “Format,” “Language” and “Availability” seem to be straightforward.
- Consider combining those facets found to be redundant or confusing by participants: such as subject facets (B & C) and physical location facets (G & H).
- Facet J (publication country) seems to be most consistently placed lowest in sort order, so it might be worthwhile removing or placing this facet at the bottom of the list.
- Allow patrons to change the order and appearance of facets with preferences settings.
- Five items per facet seems to be the preferred number.
- We recommend analyzing usage data after VuFind goes live, and doing further usability

testing. We were limited in this test by various factors, including time constraints, and testing a system that was not yet running.

Additional comments about each facet to consider

The comments provided in this section were mentioned by only one or a few of the participants in regard to each facet. However, each comment presents information that may be helpful when making final decisions about how to display and organize facets.

A = Author

- Display items within this facet in alphabetical order.

B = Full category

- Display items in this facet in alphabetical order.
- “Subject would be really helpful for a broad search and better for undergraduates and not so important for graduate level work.”
- “Subject better for a browsing search and not when looking for a specific item.”
- Subject perceived as being addressed by doing initial keyword search. Keyword search seen as defining the subject being searched for from the start.

C = Subject

- “Recommendation is to keep subjects at the bottom-- unless trained in LIS, not easy to use these.”
- Display items within this facet in alphabetical order.

D = Format

- Under this facet, combine ‘HathiTrust’ with ‘Electronic Resource’.
- One participant’s personal preference is to know whether something is online so can go print it out instead of going to the library; however, he/she did put format at the bottom of the sort list.

E = Language

- Display the options with English first then in alphabetical order.

F = Availability

- Display items in this facet in alphabetical order.
- Under this facet, combine ‘Full text available online via HathiTrust’ with ‘Available online.’
- “...not as important as seeing ‘Available’ on the search results and item page, and then see the due date if not available” (this participant ended up taking Availability out of the

list).

- Another participant put type and availability at the top of the list; “if not available, not going to look at it.” This person does not like reading online, so put availability at top because he/she wants to see if there is an actual book available.

G = Location

- Display items in this facet in alphabetical order.
- “Location and type of library [Facet H] seem to me the same category, I probably wouldn’t search by that.”
- Another participant wants to “know how close by a library is,” so this facet goes to the top of the list.

H = Library

- One participant wanted the options within this facet displayed with “University Library” first, then in alphabetical order.

I = Publication date

- Two people preferred that the options within this facet were displayed in reverse chronological order.

J = Publication country

- Display items within this facet in alphabetical order.

K = Region

- Display items within this facet in alphabetical order.

L = Time period

- Display the options within this facet in chronological order.
- “More likely to look for a range of dates, rather than a single date, few cases where would select a particular year... if have date ranges, then can remove the Century facet.”

General comments and items of note

The card sorting test results only serve to highlight the importance of word choice in labeling both the facets and the items within the facets. For some facets, the label itself is the only way a user can truly know what the facet represents (for example, “region” vs. “publication country”). In other cases, the word choice used to describe the items within a particular facet is the primary means of understanding what the label means; for example, the “location” facet could mean the library or collection within which the item is located, or the geographical focus of the content. The only way to know is from looking at the items within the facet. Conversely, a less

ambiguous label will of course influence the user's understanding of the items within the facet, as does the user's own knowledge or lack thereof about a facet.

The search scenario and keywords used in the search strongly affected how the participants labeled the facets; the context of the search itself changed their perception of the tasks. However, the importance of each facet still seemed to depend heavily on the participants' individual preferences.

Four participants made comments related to the HathiTrust link, indicating confusion or wondering what it was. One person had a vague understanding of what it was, but just mumbled something about Wisconsin and kept going. One person commented that 'HathiTrust' didn't make sense, "digital book would make more sense" or there should be a description in parentheses after 'HathiTrust.'

One participant, a faculty member, wanted some specific features; he mentioned a pre-populated ILL form that would allow requests of individual journal volumes from the item record, as well as mentioning (in a later email) wanting to be able to more easily request individual journal volumes which have no item record. He also emphasized that he wanted us to keep the "journal title begins with..." drop-down option (index) from the search page.

Availability was excluded from the lists or placed at the bottom of the sort by a couple of participants because they preferred to see it as a limiting option when searching, rather than as a facet.

One participant suggested displaying the options for Facet D (format) with 'Book' first, 'Electronic Resource' second, then in alphabetical order.

One participant confused the catalog with a literature database ("like ERIC"), suggesting additional facets might include "keyword" and "peer-reviewed."

One participant commented that "I've taken a class where the things on the top and bottom stick out more, it's the stuff in the middle that gets lost... I really don't care about that [Facet J], so that's going to be splat in the middle." If this participant was consistently using this logic when deciding where each facet would go on her list, this presents difficulty in comparing this person's results to other participants' choices.

Lessons Learned

- As noted above in the results section for tasks 1 and 2, the test was not necessarily helpful in determining the order of facets, but was reasonably useful for determining the best labels to use for certain facets.
- For placing categories in sort order, it would have been more helpful to give the participants the default category labels to place in order, as it might have provided more consistent sort order results across all participants.
- A significant number of scheduled participants (2 of 8) did not show up for scheduled interviews. It might be a good idea to overbook this type of test to account for possible

“no-shows.”

- We were unable to get medical, science/engineering students, and other types of participants due to the short amount of time given to find participants.

Appendices

Appendix A: Test Script

Greet the participant

Hello. I am _____ and this is _____ and we are members of a task force at the library helping to design the face of the next catalog. Your input will be useful to the library as we make decisions about the terminology and the design of this new website. We would like your help to decide which features to add and what to call them. Thank you for participating in this study.

Some things to know before we begin:

- I need you to sign an IRB consent form, which is for our records, and you may have a copy if you'd like.
- You're not obligated to participate even after signing the form and you can stop participating at anytime.
- Please know that we are not testing you, we just want to know your opinions and your answers will remain anonymous.

Thanks! Do you have any questions for me before we begin?

Begin test

What is your status?

- Faculty
- Staff
- Graduate Student
- Undergraduate Student
- Visitor

Do you use Mirlyn, the current library catalog? If so, how often?

I will now ask you to perform several tasks while my colleague takes notes. Please think out loud as we go along as it helps us to understand why you've made certain choices.

The new catalog has a feature that allows you to narrow your search. It presents lists of related terms to help you do this (narrow your search).

Imagine you're doing research and you've done a search in the library catalog. Take a look at this web page. It represents the results of a search for “architecture.”

Each of these index cards represents different ways to help you narrow your original search, and these will be displayed on the page next to the search results.

The number following the term shows you how many results you will get from this narrowing of the search. You can narrow it as many times as you want. There is no right or wrong answer.

1. Please read the terms on each index card and decide what you would label this group. Write your label on a sticky note and attach it to the index card. (If they ask about redundant labels, we can accept duplicate labels.) (Note taker should pay attention to how easy/difficult these decisions are for the participant, or if they change their minds, etc.)
2. Please order all the index cards in the way you would like to see them on this page. (If the participant asks or comments about not liking some groups, let them know they can leave them out if they want.)

2a. Why did you decide to sort them in this order?

Follow-up Questions:

3. The items within each group are currently sorted by the number of results, from most to least. Would you prefer a different sort order for any of the groups, for example alphabetical or chronological?
4. Are there any of these groups you would not want to see at all (If not already addressed above; or if so, might want clarification about those groups - i.e., why did you decide to leave X out of the list)? Are there groups missing that you do want to see? (If yes to either, which ones, and why.)
5. This “more...” link lets you expand this group. The cards we have been using have a maximum of 5 narrowing options per group by default. For each group, would you want to see an expanded list, a shorter list with fewer than 5, or the way they are now (exactly 5), as the default?

Thanks for participating in this study. We appreciate your help! Here are your Blue Bucks.

Appendix B: Recruitment Email

Give us your 2 cents about the library's new online catalog!

The library needs **you** - we are looking for faculty, staff and students (both graduate and undergraduates) to participate in a half-hour exercise that will help us make key decisions about our new library catalog display. During the session, you'll get to preview the new site and give us your opinions about the new interface. All information given is strictly confidential, and will be used to make improvements to the site.

When: Half an hour during one of the following times, OR at your convenience during the week of Dec 8th

- Tuesday, Dec 9th, 2:00 - 4:00 PM
- Wednesday, Dec 10th, 9:00 - 11:00 AM
- Friday, Dec 12th, 10:00 AM - 12:00 PM

Where: Hatcher Graduate Library, Room 310 North

How: if interested, please email meese@umich.edu to schedule an appointment

As a token of our thanks, each participant will receive \$10 in Blue Bucks, which can be used at many locations on campus. Feel free to send any questions to meese@umich.edu

University Library's VuFind Task Force

Marisa Conte, Shevon Desai, David Fulmer, Kat Hagedorn, Beth Strickland and Ken Varnum